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MARKETING MARGINS FOR WHITE BREAD

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MARKETING MARGINS FOR WHITE BREAD 1/

The average American eats less bread today than he did a generation ago; yet bread still accounts for a larger part of the average family's expenditures for food than most other individual products. During the last 10 years the retail price of a pound loaf of bread rose by more than a third. The farm value of the farm-produced ingredients declined slightly, but the spread between the farm value and the retail price widened by nearly 50 percent. Most of this increase was in the baker-wholesaler gross margin, although the retail gross margin also increased. The mill gross margin remained stable.

The data presented in this article are not comparable with those published in the January 1955 issue of The Marketing and Transportation Situation, (MTS-116), or in "Marketing Margins for Bread," Misc. Pub. 712, Mar. 1956. Minor changes have been made in the ingredient formula. Some series have been revised by adjusting them to levels given in the 1954 Census of Manufactures. Also a series of wholesale prices are presented for the first time in this article. Changes in methodology are discussed in a later section of the article.

Each year of the past decade has brought a higher retail price for white bread (fig. 1 and table 8). Between 1948 and 1957, the United States annual average retail price for a 1-pound loaf of white pan bread rose from 13.9 cents to 18.8 cents, an increase of 35 percent.

The retail price of bread increased less rapidly than the general level of wages. In 1957, one hour of factory labor could purchase 11 1-pound loaves of white bread in contrast to 9.7 loaves in 1948.

The farm-retail margin in 1957 was about 50 percent wider than the 1948 margin. 2/ It increased from 10.5 cents in 1948 to 15.6 cents last year.

During this period, the value of all farm-produced ingredients used in the baking of this bread declined slightly from 3.4 cents in 1948 to 3.2 cents in 1957. However, charges for services performed by the marketing system increased.

The wheat production and white bread marketing system is composed of five segments: (1) The farm producer, (2) transportation, handling, and storage agencies, and the processing agencies which produce the ingredients other than flour used in baking bread, (3) the miller, (4) the baker-wholesaler, and (5) the retailer. Each segment plays a part in supplying bread and each receives a payment that will ultimately be made by the consumer.

1/ This article was prepared by Richard H. Long and V. John Brensike, Agricultural Economists, Market. Res. Div., Agr. Market. Serv.

2/ The farm-retail margin is the difference between the retail price of a 1-pound loaf of white bread and the value of all of the farm-produced ingredients used in bread.

Table 8.- White pan bread: Estimated retail and wholesale prices of a pound loaf, retailer, baker-wholesaler and miller gross margins, estimated farm value of ingredients, and farmer's share of retail price, annual 1947-57, quarterly 1957-58 1/

Year and quarter	Retail price 2/	Retail margin 3/	Wholesale price 4/	Baker-wholesaler margin 5/	Cost to baker: All ingredients 6/	Cost to baker: Flour 7/	Mill sales value of flour 8/	Miller's flour margin 9/	Cost of wheat to miller 10/	Farm value: Wheat 11/	Farm value: All ingredients 12/	Farmer's share: Wheat	Farmer's share: All ingredients
	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Pct.	Pct.
1947	12.5	1.9	10.6	5.1	5.5	3.9	3.8	.7	3.1	3.0	3.7	24	30
1948	13.9	2.4	11.5	6.3	5.2	3.5	3.4	.6	2.8	2.6	3.4	19	24
1949	14.0	2.8	11.2	6.6	4.6	3.2	3.1	.5	2.6	2.4	2.9	17	21
1950	14.3	2.7	11.6	6.9	4.7	3.4	3.3	.6	2.7	2.5	3.0	17	21
1951	15.7	2.7	13.0	7.8	5.2	3.6	3.4	.6	2.8	2.6	3.3	17	21
1952	16.0	3.0	13.0	8.1	4.9	3.5	3.4	.6	2.8	2.6	3.2	16	20
1953	16.4	2.9	13.5	8.4	5.1	3.7	3.5	.6	2.9	2.5	3.1	15	19
1954	17.1	2.7	14.4	8.9	5.5	4.0	3.8	.6	3.2	2.7	3.3	16	19
1955	17.5	2.6	14.9	9.6	5.3	3.9	3.7	.6	3.1	2.7	3.2	15	18
1956	17.9	2.6	15.3	10.1	5.2	3.7	3.6	.6	3.0	2.6	3.2	15	18
1957 13/	18.8	3.1	15.7	10.5	5.2	3.7	3.6	.6	3.0	2.6	3.2	14	17
1957													
Jan.-Mar.	18.5	2.9	15.6	10.4	5.2	3.7	3.6	.6	3.0	2.7	3.3	15	18
Apr.-June	18.8	3.1	15.7	10.5	5.2	3.7	3.6	.6	3.0	2.6	3.2	14	17
July-Sept.	18.9	3.2	15.7	10.5	5.2	3.7	3.5	.6	2.9	2.5	3.1	13	16
Oct.-Dec.	19.0	3.3	15.7	10.5	5.2	3.7	3.5	.5	3.0	2.6	3.2	14	17
1958													
Jan.-Mar.	19.1	3.2	15.9	10.7	5.2	3.7	3.5	.6	2.9	2.6	3.2	14	17
Apr.-June 13/	19.2	3.3	15.9	10.8	5.1	3.6	3.4	.5	2.9	2.5	3.0	13	16

1/ The retail price, farm value, and farm-retail spread or marketing margin for the years 1919-56 were published in "Farm-Retail Spreads for Food Products," U. S. Dept. of Agr., Misc. Pub. 741, Nov. 1957, p. 117. Comparable data for the other series in the table are not available for the years before 1947.

2/ Average of retail prices in urban areas reported by BLS, with adjustments for 1954 and 1955.

3/ Spread between retail and wholesale prices.

4/ Derived from prices published by the BLS and trade data.

5/ Spread between wholesale price and cost to the baker of all ingredients.

6/ Cost of flour, shortening, nonfat dry milk, sugar, and other ingredients in a pound of bread, adjusted to level of cost to baker as reported in the Census of Manufacturers.

7/ Weighted average wholesale value of 0.641 lb. of several types of bread flour in 5 markets, adjusted to the level of cost to baker as reported in the Census of Manufacturers.

8/ Weighted average wholesale value of 0.641 lb. of several types of bread flour in 5 markets, adjusted to mill sales level as reported in the Census of Manufacturers.

9/ Spread between cost of wheat to miller and sales value of flour.

10/ Weighted average wholesale value in 6 markets of 0.894 lb. of major classes and grades of wheat used for milling bread flour, adjusted to level of cost to miller as reported in the Census of Manufacturers, and further adjusted to eliminate imputed value of millfeed byproducts.

11/ Payment to farmers for 0.894 lb. of wheat less imputed value of millfeed byproducts, based on average price received by farmers for all wheat.

12/ Value at prices received by farmers, less byproduct allowances, for the quantity of wheat and other farm products yielding ingredients used in a pound loaf of white bread.

13/ Preliminary.

Baker-Wholesale Margin Widening

During the last decade, 4.2 cents or 86 percent of the 4.9 cents increase in the retail price of a 1-pound loaf has occurred at the baker-wholesale level. In 1957 the baker-wholesale margin accounted for 10.5 cents or 56 percent of the 18.8 cents retail price (table 8).

The baker-wholesale margin or price spread is the difference between the wholesale price of white bread paid by the retailer and the cost to the baker of all of the ingredients. In calculating this spread it was assumed that the bread moved through the baker-wholesale and retail channel -- the predominant method of distribution. 3/ The usual baker-wholesale operation, which is assumed in this report, is predominantly a driver salesman operation and includes retail display and other services.

3/ For retail and house-to-house bakeries the combined baker-wholesale and retail price spread has more meaning. For chain stores the total of these two spreads also has more meaning since their operation approaches a drop delivery service.

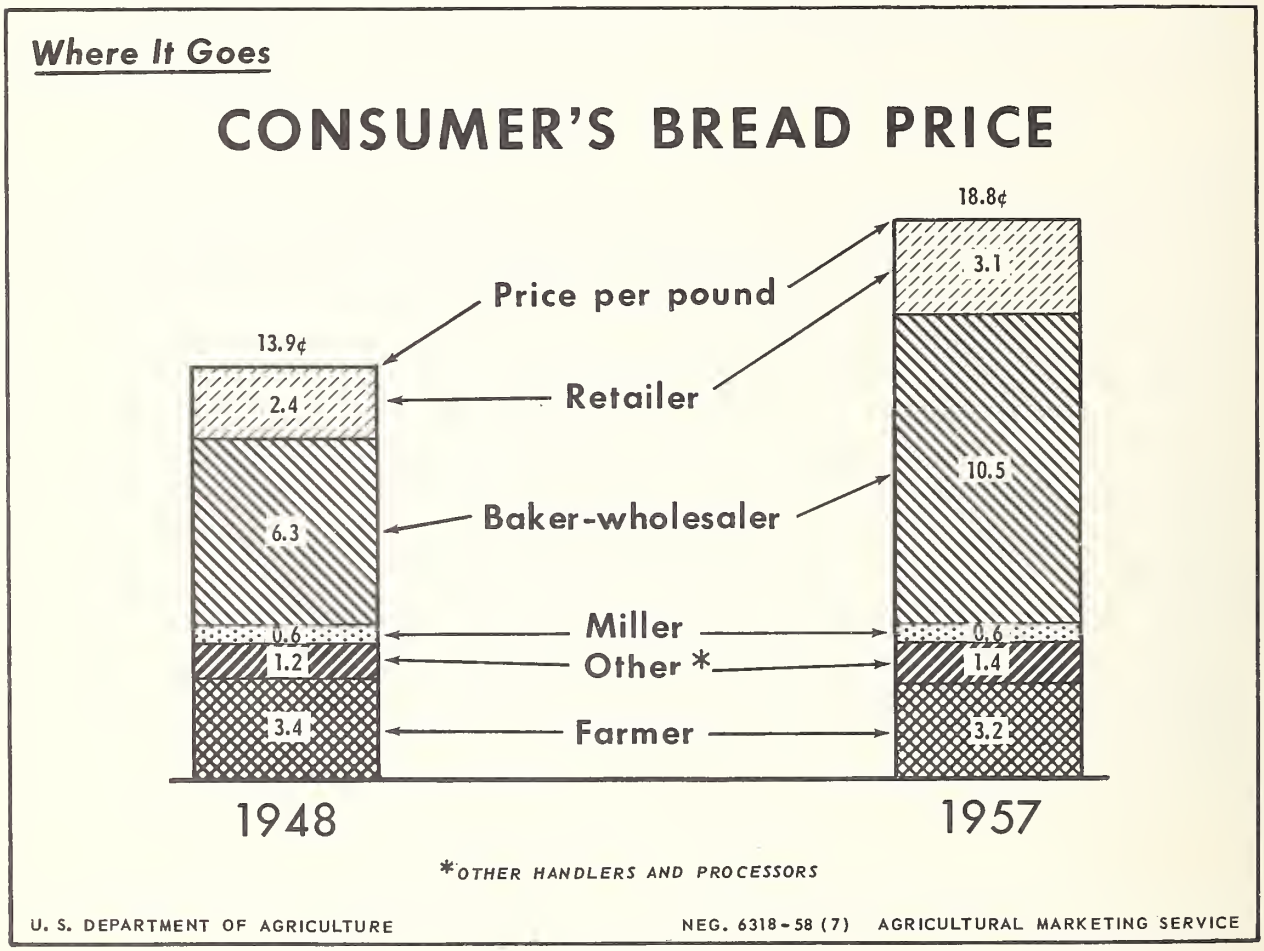

Figure 1

The services performed by the baker-wholesaler are varied. They generally can be divided into three main groups: (1) Prebaking operations, (2) baking, and (3) operations performed after baking.

Briefly, flour and other ingredients must be assembled, stored and aged, blended, and sifted. Then the dough is mixed and the fermentation process is accomplished. Dividing the dough into loaf size units, rounding, proofing or resting, moulding into loaf shape, panning, and final proofing of the dough complete the prebaking operation.

After baking, the loaves are allowed to cool either naturally or in air-conditioned chambers. The bread is then sliced and wrapped, often by a continuous machine operation. Other services performed at the bakery are handling, selling, and delivery of the finished product. Delivery, in most instances, includes retail stocking, display, and other services. Each of the baking operations contributes to the size of the baker-wholesale margin. In recent years, costs of baking have increased (table 9).

Increases in wages and salaries, since they are the largest item of expense, accounted for the major part of the growth in the baker-wholesale margin. Other cost items increased almost proportionately; wages and salaries amounted to 46 percent of the margin in 1945 and 49 percent in 1957. It is estimated that in 1957 a little over 5 cents of the margin of 10.5 cents was used to pay wages and salaries. Roughly an additional 0.3 cents was used to pay fringe benefits and social security taxes. In total, labor and related expenses per loaf have just about tripled since 1945 (table 9).

Between 1951 and 1957 average hourly earnings for bakery employees rose from $1.43 to $1.92 (table 10). Indirect labor payments in the form of fringe benefits and social security taxes also made marked advances and in 1957 probably amounted to more than five times the 1945 level (table 9). Dollar sales of the industry also increased markedly. Consequently, the cost of labor as a percentage of sales has shown only a slight increase while man-hours worked per dollar of sales have decreased.

The quantity of bread produced per man-hour of labor appears to have decreased substantially between 1945 and 1955, according to estimates based on data given in table 9 and the 1954 Census of Manufactures. Decreases in output per man-hour in the nonproduction worker category seem to have caused this decline in efficiency. 4/ Output of bread per man-hour of production labor increased about 3 percent from 1947 to 1954, according to the analysis of census data.

4/ Employees classified as nonproduction workers are those who do sales, administrative, professional, and clerical work.

Table 9.- Costs, profits, and the baker-wholesale margin for a 1-pound loaf of white bread, 18 multiplant and 18 single-plant wholesale baking companies, 1945, 1950, 1955 and 1957 1/

Item	18 Multiplant companies			18 Single-plant wholesale baking companies			Composite estimates 2/
	1945	1950	1955	1945	1950	1955	1957
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Wages and salaries	1.91	3.45	4.66	1.61	2.99	4.04	5.1
Fringe benefits to employees	.02	.04	.19	.05	.10	.13)	.4
Social security taxes	.04	.08	.10	.03	.07	.10)	
Compensation of officers	.02	.04	.06	.15	.20	.25)	
Packaging and wrapping material	.38	.72	1.01	.41	.83	1.11	1.1
Delivery expense other than wages and salaries	.29	.48	.71	.34	.61	.88	.9
Cost of bakery products bought for resale	.01	.02	.04	.12	.20	.30)	.7
Advertising and promotion	.18	.28	.54	.13	.32	.42)	
Taxes, other than social security, income and excess profits	.06	.10	.11	.04	.06	.10)	2.3
Depreciation allowance	.10	.24	.33	.11	.27	.38)	
Items not specified	.33	.53	.74	.45	.73	1.04)	
Income and excess profits taxes	.33	.46	.56	.14	.26	.23)	
Net profits (after taxes)	.22	.55	.51	.19	.38	.19)	
Total margin	3.89	6.99	9.56	3.77	7.02	9.17	10.5

1/ Calculated from data given in "Cost and Margin Trends in the Baking Industry," a Staff Report to the Senate Committee on Agriculture and Forestry, May 1, 1957. In this calculation the costs of ingredients used in bread were excluded in order to make the margin comparable with the concept used by the Agr. Market. Serv.

2/ Estimated by the Agr. Market. Serv.

In part, this rise in labor costs per loaf was due to rising wage rates, fringe benefits, and commissions paid to delivery and other nonproduction employees. Even more important, however, is the fact that the volume of bread distributed per route, which had been increasing before 1945, had declined 28 percent by 1953. 5/ The growth of "drop day" and "swing man" operations probably has further accentuated this problem. As a result, with roughly comparable total physical volume the wages and salaries of nonproduction workers reported in the Census of Manufactures increased 63 percent from 1947 to 1954.

5/ Charles C. Slater, Baking in America, Volume II, Market Organization and Competition, Northwestern University Press, Evanston, Ill., 1956, table 54, p. 354.

Table 10.- Hourly earnings of bread and other bakery products employees, annual average 1951-1957 1/

Year	Actual earnings including overtime	Index (1951 = 100)
	Dollars	
1951	1.43	100
1952	1.52	106
1953	1.60	112
1954	1.68	117
1955	1.75	122
1956	1.84	129
1957 1/	1.92	134

1/ Preliminary.

Bureau of Labor Statistics, Employment and Earnings.

Other bakery costs per loaf also have risen. Some have more than tripled since 1945. For instance, the combined costs of advertising and promotion and of bakery products bought for resale are more than three times what they were in 1945. It appears that packaging and wrapping materials also have risen in about the same proportion. Delivery expense, other than wages and salaries, has more than doubled, and other items have shown gains of 100 percent or more.

Profit (after taxes) per loaf for these baker-wholesalers were about twice as high in 1950 as in 1945. In 1955 they had decreased slightly in the multi-plant bakeries and dropped back to the 1945 level in the single-unit bakeries (table 9).

Profits (after taxes) of six leading baking companies declined from approximately 4 percent of sales in 1947 and 1948 to 2.3 percent of sales in 1956 and 1957 (table 11). Labor, the largest cost item, increased from about 31.7 percent of sales in 1945 to about 34.7 percent of sales in 1955 for the companies for which data are given in table 9. Profits (after taxes) of these six leading baking companies decreased from a high of 21.9 percent of stockholder equity in 1948 to a level of about 11.0 percent during the 1954-57 period.

Table 11.- Sales and profits of six baking companies, 1947-57

Year ended December 31	Sales	Total net income		Net income as a percentage of sales	
		Before taxes	After taxes	Before taxes	After taxes
	1,000 dollars	1,000 dollars	1,000 dollars	Percent	Percent
1947	483,151	28,796	17,615	6.0	3.6
1948	526,695	39,815	24,494	7.6	4.7
1949	504,548	30,908	19,316	6.1	3.8
1950	524,548	34,192	19,576	6.5	3.7
1951	568,783	32,057	15,606	5.6	2.7
1952	589,875	32,832	15,938	5.6	2.7
1953	626,018	33,371	16,339	5.3	2.6
1954	639,259	29,325	14,701	4.6	2.3
1955	687,790	36,616	17,933	5.3	2.6
1956	752,798	36,265	17,096	4.8	2.3
1957	801,381	38,463	18,373	4.8	2.3

Compiled from Moody's Industrials.

Retail Margin Widens Slightly

The retail margin, the difference between the retail price and the wholesale price paid by retail stores, rose from 2.4 cents in 1948 to 3.1 cents in 1957. This 29 percent increase is far less than the 67 percent rise in the baker-wholesaler margin. Though the retail margin increased in cents per loaf, it gradually decreased as a percentage of the retail price. Retail prices of white bread changed more frequently than the wholesale prices. 6/ This was partly responsible for fluctuations in the retail margin.

The margin retained by the retailer is for services which he performs in providing display space, light, heat, check out, delivery, credit, and other services and customer conveniences. In addition the retailer may also be responsible for physically making the displays. In recent years, the baker-wholesaler has sometimes assumed duties previously performed by the retailer, thereby lessening the necessity of a wider retail margin.

Flour Mill Margin Steady

Mill marketing margins for the flour included in a 1-pound loaf of white bread remained at 0.6 cent during the last 10 years, except in 1949 when it dropped to 0.5 cent. From this margin, the miller must pay all of the expenses arising from the conversion of wheat into white flour and obtain his profit. In addition to actual milling costs, the miller bears the costs of maintaining storage facilities for incoming wheat and outbound flour shipments. Packaging materials for shipment of flour are another expense item in the miller's margin.

6/ This is evident from monthly data, though not from annual data.

Labor is a less important factor in milling than in baking, Consequently, increases in labor costs have less impact in the milling industry. According to the Census of Manufactures, payrolls in the bread and related products industries accounted for 32 percent of the value of shipments in 1954, compared with only 6 percent in the flour and meal industry. Consequently, although average hourly earnings in the mill rose from $1.24 in 1948 to $2.02 in 1957, this increase apparently had little effect on the margin. Value of shipments per man-hour of production labor in the 1954 Census of Manufactures increased nearly 15 percent from 1947 figures while flour prices remained relatively stable. Millers perhaps have been able to increase the value of shipments per man-hour because of the trend toward bulk handling and other efficiencies in the use of labor.

Transportation, Storage, and Other Processing

Transportation, storage, and handling of grain and other ingredients, and processing charges for ingredients other than flour totaled about 1.4 cents in 1957 or 0.2 cent more than in 1948. Approximately two-thirds of these charges involved the services rendered in processing, transporting, storing, and distributing the bread ingredients other than flour. The other one-third covers the services rendered in (1) handling, storing, and transporting the wheat equivalent as it moves from the farm to the flour mill, and (2) any additional service performed, primarily transportation, as the flour moves from the mill to the bakery.

Although there have been slight fluctuations, these transportation, storage, handling, and other processing charges in the aggregate have tended upward over the years. Currently, they amount to a little more than 7 percent of the retail price of a 1-pound loaf of white bread.

Farm Value Declines Slightly

In 1957 the farmer received 3.2 cents for all farm-produced ingredients, compared with 3.4 cents in 1948. The low for the period occurred in 1949 when the farm value of all ingredients was 2.9 cents. The farm value of all ingredients dropped from 24.5 percent of the retail price in 1948 to 20.0 percent in 1952, and finally to 17.0 percent in 1957.

The farm value of the wheat in a 1-pound loaf of white bread was 2.6 cents in 1957, the same as in 1948. The year 1949 saw the lowest farm value of wheat for the period at 2.4 cents while 1954 and 1955 brought the high of 2.7 cents. Changes in farm prices since 1948 have had no significant effect on the retail price. This is also true of the farm value of all ingredients.

While the farm value of the wheat changed little as the retail price increased, it has constantly taken a smaller percentage of the retail price. It declined from 19 percent of the retail price in 1948 to 14 percent in 1957.

Changes in Methodology 7/

Bread Formula Changes

The ingredient formula for white bread used in previous margins studies has been replaced by a more modern formula. This new formula was derived from data received from an industry survey made in connection with the staff report to the Senate Committee on Agriculture and Forestry, entitled Cost and Margin Trends in the Baking Industry, May 1957. The "new" white bread formula is based on the formulas submitted by the baking establishments cooperating in this survey and on suggestions made by the American Institute of Baking (table 12).

Table 12.- "New" and "old" white bread formulas

Ingredients	New formula	Old formula
	Per loaf of bread	Per loaf of bread
	Pounds	Pounds
Flour	.6410	.6494
Shortening	1/.0224	2/.0182
Milk solids, non-fat	.0231	.0144
Sugar	.0481	.0279
Yeast	.0160	.0114
Salt	.0128	.0130
Mold inhibitor	.0013	
Yeast food	.0048	
Malt extract		.0031
Mineral yeast		.0021

1/ Lard.
2/ Lard and vegetable shortening.

Wholesale Price Estimates

No series of wholesale prices comparable with the averages of retail prices collected by the Bureau of Labor Statistics in 46 cities was available. The Agricultural Marketing Service derived such a series from (1) retail and wholesale prices of bread during 1955-57 in 46 cities, 8/ obtained from a quarterly survey conducted by a private concern, and (2) wholesale price indexes published by the BLS for New York, Chicago, San Francisco, and New Orleans.

7/ The method of calculating the farm value of white bread ingredients is described in Farm-Retail Spreads for Food Products, U. S. Dept. Agr., Misc. Pub. 741, Nov. 1957, p. 88.

8/ These cities are comparable to the 46 for which the BLS reports retail prices and the prices were weighted by the BLS weights.

This computation adjusts the 4-city series to the level of the prices paid by retailers in 46 cities during the period 1955-57. The computation retains the relative size of the retail margin as shown by the private survey.

The ingredient cost estimates used in this report compare closely with estimates derived from the Senate survey (table 13). Ingredient cost estimates based on the 18 multiplant bakery data were slightly less than those reported in this article 4 out of the 7 years for which comparable data are available and were identical during the other 3 years. Ingredient costs based on data for the 18 single unit wholesale bakeries tended to be the same as or slightly larger than those reported in this article. Since the baker-wholesale margin is defined as the difference between the wholesale prices and the costs of ingredients, the similar ingredient costs mean that the margins also are similar.

Table 13.- Comparison of ingredient costs per loaf from the AMS price spread analysis and Senate Committee Survey

Year	Ingredient cost 1/	Estimated ingredient cost 2/	
		18 multiplant bakeries	18 single unit wholesale bakeries
	Cents	Cents	Cents
1945	2.9	2.9	3.0
1948	5.2	3/	3/
1949	4.6	3/	3/
1950	4.7	4.6	4.6
1951	5.2	5.1	5.2
1952	4.9	4.9	5.1
1953	5.1	5.0	5.1
1954	5.5	5.4	5.6
1955	5.3	5.3	5.7
1956	5.2	3/	3/
1957	5.2	3/	3/

1/ Column 5, table 8.

2/ Based on wholesale price level reported in column 3, table 8, and ingredients as a proportion of sales reported in survey conducted by Senate Committee on Agriculture and Forestry.

3/ Not available.